THE

ADVOCATE OF SCIENCE,

AND

ANNALS OF NATURAL HISTORY.

VOL. I. PHILADELPHIA, OCTOBER, 1834. No. 3.

NOTES OF A NATURALIST.

By JACOB GREEN, M. D., Prof. of Chem. in Jeff. Med. College.

HOLLOW TREES.

Whenever the mind reverts to days long past, those recollections which perhaps produce the most thrilling interest are of some incidents of childhood, connected not only with rural life, but with the creations of the vegetable world. How many examples in illustration of this remark now spring up in the thoughts, in all the vividness of a present reality. Who cannot at once recal a thousand youthful sports, associated with woodland scenery. Though I never subscribed to the opinion that "childhood was the happiest stage of life," I think I have here discovered the reason of this maxim. To give two or three illustrations, familiar in the experience of almost every one. Well do I remember stretching myself out at full length, on the top of some shining grassy slope, and rolling down to the foot of the bank with screams of ecstacy. Who does not again enjoy, in some degree, the delights of his earlier years, when he recals his careless rambles through the woods and fields, the meadows and gardens. In the beautiful language of Professor Kidd, "Who does not remember, or at least fancy that he remembers, the eager activity with which he was used to strip nature's

carpet of its embroidery, nor ceased to cull the scattered blossoms till his infant hands were incapable of retaining the accumulated heap."

It is my present intention to notice some remarkable and gigantic specimens of the vegetable kingdom, occasionally met with in travelling through our country; and the foregoing thoughts were suggested by some reminescences connected with an enormous sycamore tree, (PLATANUS *occidentalis*,) which grew near Stonybrook, on my grandfather's estate, and which was the scene of many a childish gambol. This old tree was decayed within, and quite hollow from the ground to the top of the trunk, which was shattered and broken off about thirty feet from the surface. Many luxuriant branches shot out from its decaying and apparently lifeless body, supported entirely by the sap vessels near the outer bark. Often have I climbed through the hollow of this aged tree to its airy top, to gazc on the surrounding scenery, which, to my youthful and inexperienced eyes, seemed infinitely varied and almost boundless. The bubbling and glittering brook, gushing along at my feet—the tinkling of the sheep bells in the meadows—the sudden and brief notes of the birds in the dark woods, and the beauty and fragrance of the vegetable world, spread all around me, was enchanting beyond description. The seclusion and remoteness of this spot diffused through my mind peculiar emotions, well adapted to the enjoyment of such scenes. I have since admired the magnificent views from the top of the Catskill mountains—the romantic scenery from the Wind cliff in Wales, and the still more famous prospect from the summit of the Rigi in Switzerland; yet none of these have left so bright and durable an impression, as the sight of the little world which appeared to my delighted eyes, when seated on the pinnacle of this venerable tree. The hollow of the trunk was capacious enough to contain a little family, and during the colonial government of New Jersey an Indian and his squaw, the last lingering remnants of their tribe, made it their wigwam. Here they manufactured brooms and wicker baskets, from the wood of the surrounding forest, and supplied the few wants they had, by the sale of them at the neighboring village of Princeton. This little Indian tradition often formed

the subject of my musings; there, thought I, in these extensive and beautiful domains, the red men pursued their sports and hunted their game; these forests have echoed with their yells; the plain below me was once the scene of the feast and the dance. Absorbed in such thoughts as these, I sometimes fancied I could see an Indian rolled up in his blanket, sleeping in the hollow of the tree below.

It is a curious fact, not in conformity with the usual operations of nature, that some old hollow trees possess a power of renewal, or of filling up their vacant cavities with sound wood. No instance of this has fallen under my observation, but Mr. Jesse mentions a case of the kind in his Gleanings of Natural History.

The sycamore, or buttonwood, is one of the giants of the American forest. As far as my observation extends, those which are found east of the Alleghany Ridge never attain such an extraordinary size as those west of the mountains; still it is one of the largest trees in every forest where it grows. Near the southern boundary of Lake Erie, in the state of New York, I have seen hollow trunks of the Platanus that would measure from forty to fifty feet in circumference. The new settlers in that district saw them transversely into different sections, and convert them to a variety of domestic purposes; I have seen well curbs, pig-sties, and other small enclosures, frequently made of them. Some of the largest trunks of the Platanus have been exhibited in the Atlantic states as mammoth trees, the interior being neatly lined with cloth, and furnished with a carpet, sofa, and all the *et ceteras* of a splendid drawing-room.

GALLOWS TREES.

There is another remarkable tree in the neighborhood of Princeton; it may be found on Rockyhill, about two miles west of the town. It is a large and very ancient white oak, (Quercus *alba*,) and stands in a cleared spot, two or three hundred yards to the south of the road which passes over the hill. Its large, rugged and knotty trunk, at about three feet from the ground, swells out on one side into an enormous protuberance,

from the upper and outer surface of which, a second trunk grows up parallel to the regular and natural body of the tree. At about seven or eight feet from its origin, this second parasite stem throws out a large branch, which has engrafted itself into the very substance of the true body of the tree, thus forming a regular, continuous, quadrilateral figure. It is known in the neighborhood as the *Gallows Tree*, and is said to have been more than once used in olden time, as a place of capital punishment. This idea always destroyed in my mind much of the gratification I felt in viewing this venerable remnant of the ancient forest. The top of the parasitic trunk is broken off and shattered, perhaps by lightning; but the rest of the tree still flourishes in healthy, rich luxuriance.

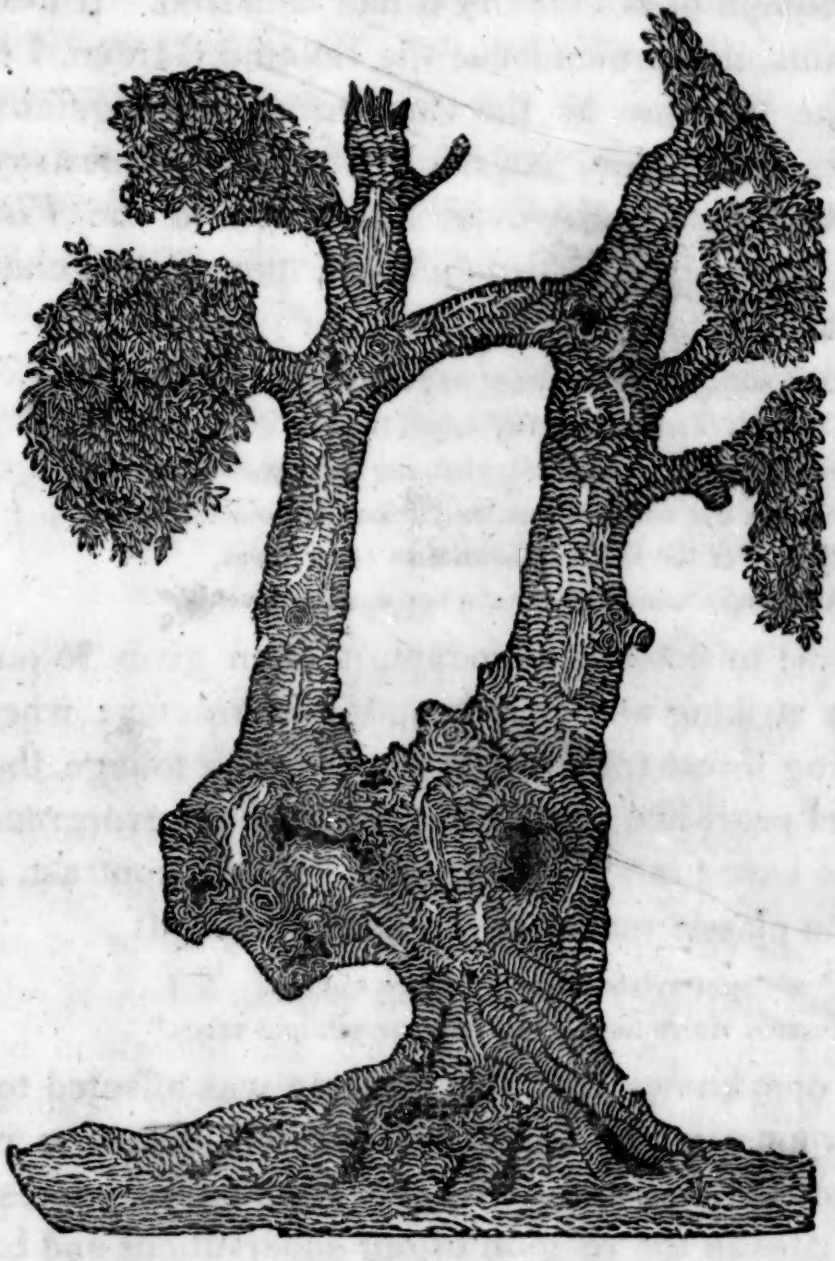
Gallows trees are not uncommon in the United States. I will notice but two others, which may be seen a few miles west of the city of Baltimore. One is a splendid beach, (Fagus *ferruginea*,) and the two stems seem, as far as I could judge, to have grown up from a *double* nut; about six feet from the ground a branch shoots out at an angle of 45° from the smaller into the larger body—the innoculation is not, however, very perfect.

The other g*allows* is formed by the union of two trees which arise from separate roots; they are both beach trees, about a foot in diameter, and stand nearly four feet asunder. At the distance of seven feet from the ground, a large branch passes at a small angle from the one to the other, and is so completely engrafted and incorporated, that it is difficult to say from which tree it originally sprung. This interesting *Lusus Naturæ* may be seen about four miles from the city of Baltimore, on the Franklin road; it stands but a few paces from the foot path.

I have seen some curious plays of Nature in the vegetable world, not very unlike those above stated, but which were produced by artificial means. To mention but one case—If a hole be made with an augur in almost any tree a few feet below one of the branches, then, upon cutting off the extremity of the branch, bending it over in the form of an arch, and forcing it into the orifice so as to exclude the air, they will

soon be grafted together. In the paw of one of the black bears in the Philadelphia Museum there is a pretty exhibition of this kind, made with the stem and branch of a gum tree.

THE GALLOWS TREE.



PARASITE PLANTS.

Apart from its utility, there are few individuals in the vegetable world possessed of greater interest than the *misletoe.* Growing not in the earth in the ordinary manner, but hanging from the branches or trunks of the plants, it derives its nourishment from the sap or very life blood of the tree upon which it fastens, by forcing its radical fibres between the bark of the wood. The misletoe is widely diffused over the United States. In Maryland, I have seen it growing in great luxuriance on

the gum and on the apple tree. It is the popular belief there, that it eventually kills the tree to which it adheres. At any rate, I have seen its dwarf branches and bushy tufts flourishing in wild exuberance on the dead branches of many a noble tree, as if in triumph of the victory it had achieved. If I could personify plants, in the manner of the Botanic Garden, I could represent the misletoe as the vampyre of the vegetable world, supporting its own life, like the bat of Java, by destroying that of others. Darwin, however, has given to the *Viscum*, the scientific name of this shrub, a much more gentle character—his lines are:

"Oh! stay, bright habitant of air, alight,
Celestial *Visca*, from thy angel flight!
Scorning the sordid soil, aloft she springs,
Shakes her white plume, and claps her golden wings;
High o'er the fields of boundless ether roves,
And seeks amid the clouds, her soaring loves!"

When the misletoe is abundant, it often gives to our winter scenery a striking and very beautiful character; when all the surrounding forest trees are stripped of their foliage, the shining leaves and pearl-like berries of this luxuriant evergreen, hanging on the bare branches, present a striking contrast, and will remind the classic reader of the lines of Virgil:

"Quale solet sylvis brumali frigore viscum,
Fronde virere nova, quod non sua seminat arbos."

Every one knows that the misletoe was affected to be held in great veneration by the Druids, or the idolatrous priests of the ancient Britons, and that some of the most interesting and innocent rites in the religion of our superstitious and barbarous ancestors were connected with this plant when they found it growing on the oak. It was also probably the golden branch which the Sibyl directed Æneas to obtain as a pasport to the infernal regions, when he desired to consult the shade of his deceased father.

The next parasitic plant I shall notice is of a very different character from the misletoe.

In Otsego county, in the state of New York, not far from one of the sources of the Susquehanna river, I observed a very remarkable tree, in the midst of the forest. This was a mag-

nificent pine, the PINUS *strobus* of Linnæus, which rose by its fine, even, straight trunk to an uncommon altitude; but out of the top, and apparently continuous with the body of the tree, there grew a branch of hemlock, (PINUS *canadensis*,) about three or four feet in height. The appearance of its leaves and branches are so entirely different from those of the white pine that no observer can mistake the one for the other. This tree is well known to all the curious residing in the beautiful village of Cooperstown. As this tree and its parasite are far removed from any habitation, and appears to be older than the first settlement in the neighborhood, it is difficult to imagine how the two have been grafted together. Could a bird have transported a cone of the hemlock to the top of the pine? or could an Indian, in sport or pastime, have inserted the foreign branch with his tomahawk?

SEEDLESS APPLES.

The last instance of remarkable vegetation I shall, at this time mention, is an apple tree growing in Putnam county in the state of New York, not far from the Hudson river. It bears a small winter apple, which does not contain seed; the pericarp is perfect, but I was informed that, excepting in three instances, no seed had ever been found. To the surprise of the party who visited with me this curious tree, the first apple I examined contained *one* well formed seed; but after diligent search none of the party could find another. I have heard of another apple tree which bears a fruit without either seed or pericarp; this apple is much used for *drying*, as the trouble of removing the seed for that purpose, is saved. I have heard it stated, that these *seedless* apples are produced by planting the limb of the tree in the earth, and after it has taken root, to cut it off from the parent stem—then all the fruit which it may produce will be without seeds.

A SKETCH OF THE HISTORY OF GEOLOGY,

Introductory to a series of Essays on that Science.

By Henry Gibbons, M. D.

The early period of the history of geology exhibits only a confused medley of speculative systems, pretending to explain the original formation of our terrestrial planet. These systems were clothed with the dignified title of "Theories of the Earth." In the whole range of moral and physical science, there is, perhaps, no subject better adapted to excite the fancy of the student and to allure him from the path of sober fact and logical induction, into the devious mazes of conjecture. No sooner does he enter the threshhold of inquiry, than he feels himself obliged to explain the mode in which the magnificent object of his study began its existence; and not only that, but the precise period of time when our globe started in her orbit, and when she experienced each of those grand revolutions whose records are impressed on her surface. Hence, we scarcely find a single geologist of any notoriety who has not broached his particular theory or hypothesis, which, instead of being the correct method of explaining the formation of the earth, may be regarded merely as the plan that its inventor would have adopted, had the duty of making a world devolved on him. Until within the two last centuries, or up to the time when flourished the immortal Werner, geology consisted entirely of these world making systems. Werner, the father of modern geology, was even ashamed of the title which his predecessors had claimed for their visionary pursuits; and he therefore applied to the science, as it was studied by him, the term *geognosy*. So long as men were ignorant of the real structure of our globe, theories of the earth started daily into existence; but as ignorance vanished before knowledge, and error before truth, these fantastic dreams gave place to the rational pursuit of modern geology, in which the idea was taken by the illustrious German whom I have just named.

The first of those baseless systems deserving our notice was ushered before the public by Burnet, in the latter part of the seventeenth century, with the imposing title, "The Sacred His-

tory of the Earth, containing an account of the original of the Earth, and of all the general changes which it hath already undergone, or is to undergo, till the consummation of all things." It may well be supposed that a book with such a title was not confined in its range of subjects to a few phenomena of the present age. Burnet commenced his labors with a chaotic mass of fluid, from which he separated the heavier particles to form a solid nucleus, the æriform portion to constitute the atmosphere, and the liquid part to surround the nucleus forming the primeval ocean. It was necessary in the next place to obtain an additional quantity of solid material; and this he derived from the atmosphere, which he made to deposit on the surface of the water a rich unctuous crust. A crop of luxuriant vegetation now sprang up, and the new earth was covered with beautiful verdure. There were no mountains, no seas, no inequalities, none of those rugged protuberances that exert so powerful an influence on the climate of the present world. The equator being coincident with the plane of the ecliptic, the charms of spring were perpetual; or, as one might say, who has imbibed the modern taste for variety, a dull and unvarying monotony reigned throughout. This fertile crust, however, could not long endure the glowing heat of the sun, but like the potter's ware made of untempered clay, cracked beneath the burning rays, and sank piece meal into the waters below, so as to give rise to the general deluge. At the same time, by some convulsion from within, or through the agency of a comet or some other extraneous influence, the axis of the earth was tilted into an oblique position, laying the foundation for the ever changing seasons.

Such are the most striking features of Burnet's theory. It was not without opposers even in that age of ignorance. One of these, a very able Oxford critic, whose work passed through several editions, says of our theorist, "that he begins his discourse with the saying of an old heathen, that philosophy is the greatest gift that ever God bestowed on man; but it is plain," continues he, "to any who would be at the pains to read his book, that God has thought fit to bestow very little of that

great gift upon *him;* and that the world may not say this is ill nature, I will give them a taste of his philosophy."

About the same time, the celebrated Leibnitz published his system, which considers the earth and all the planets to have been originally fixed and luminous stars, blazing for many ages in a state of combustion, and that they finally ceased for want of fuel. A kind of glass was thus made, which, on cooling, formed the base of all things on the earth, and the fragments of which composed sand and gravel. The steam which had been generated by the mass of fire, was now condensed into water, forming rivers, lakes and oceans.

Woodward next appeared on the list of world makers. With some little knowledge of the real contents of the earth's surface, he hastily proceeded to build a theory—to construct a ship according to the remark of Bacon, with materials insufficient for the rowing pins of a boat. He supposed the waters of the great deluge to have held in solution all the rocks on the surface of our planet, which were gradually and successively deposited according to their specific gravity. To complete the process, the mountains were easily projected by some internal commotion.

By Dr. Halley, another theorist, the deluge is ascribed to the shock of a comet, which whirled the great ball we inhabit from its wonted course, producing the same deplorable consequences so much lamented by Burnet.

The theory of Whiston was a combination of those already advanced. This scheme was sustained by many acute mathematical calculations, all founded unfortunately on assumed and improbable data. Whiston provided a comet which dashed between the earth and her moon, flattened the former in the direction of the axis, and otherwise disconcerted the arrangements previously in operation, insomuch that the ocean was forced from its bed so as to deluge the land. But the earth was not allowed to repose herself till the same rude comet had speedily returned from the sun, laden with steam, and whisked its liquid tail over our persecuted star, completely drowning the loftiest mountains.

It is said that these notions were originally advanced by

Whiston only as conjecture; but that he was subsequently convinced of their truth, and struggled with zeal to maintain them.

Whitehurst was an English author, of more information on geological subjects, who wrote his scheme of the world in 1729. He promises "to inquire after those laws by which the Creator chose to form the world, not those by which he might have formed it, had he so pleased; hoping," as he expresses it, "to obtain such knowledge of subterraneous geography as might be subservient to the purposes of life, by exposing new treasures which are concealed in the lower regions." As if aware of the great and extensive purposes to which the vapor of water might be applied, Whitehurst accounted for most phenomena by the action of steam, and considered the earth as a vast steam boiler, the bursting of which elevated the mountains and produced the other inequalities on its surface!

But the theory of Buffon was destined to eclipse all the fantastic productions which preceded it. Bold and novel in its leading features, it was finished off with all the tinsel that fancy and eloquence could bestow. Like some of his predecessors in the art of world making, Buffon found it convenient to call in the aid of a comet in the manufacture of the planetary system. This erratic outlaw struck off from the sun a number of fragments, which being in a fused state, assumed a globular form, and continued in a whirling motion around what was left of that great source of light and heat. With astonishing precision, the date of this important accident is fixed at 96,000 years before the promulgation of the veritable fact by Buffon. One of these fragments, the same that we now call our earth, became cool enough in 40,000 years to support animal life at the poles. Since that time, the cooling process has so operated as to render habitable the tropical portions, and to endanger the tenants of the frigid zone, in case of further diminution of the temperature of their climate. The waters formed by the condensation of the vapor which enveloped the earth, have been retiring before the land, and according to Buffon, will eventually diminish so as to leave the bottom of the ocean a fertile country, diversified with gentle hills and verdant groves. Our eloquent author has not deemed it necessary to provide against the cala-

mity which will most certainly befal the animal creation by the entire dissipation of the waters that are now so important to our existence. The thirsty globe will then require another dexterous blow from a comet to return it to the sun for renovation. Or, if this plan should be insufficient, I would suggest the borrowing of the comet of Whiston, which we know to contain a copious supply, as a watering pot for our parched earth.

A modification of Buffon's theory was adopted by Dr. Darwin, and by him versified in the second canto of his Botanic Garden. Darwin, instead of asking the aid of a comet, supposed the existence of volcanoes in the sun, a position amply demonstrated to *his mind* by the spots on the disk of that luminary. It was with a dire explosion of a solar volcano, that

> "From the deep craters of his realms of fire,
> The whirling sun this ponderous planet hurled,
> And gave the astonished void another world."

The land, at first covered with water, was at length made to appear in places by the addition of "corals, pearls and shells," and there were no ice crowned mountains, no lightnings, no tempests. The continents were then elevated by a great earthquake, and old ocean retired to his caverns. At the same time the earth burst asunder, and

> ——————"from her wounded side,
> Where now the south sea heaves its waste of tide,
> Rose on swift wings the moon's refulgent car,
> Circling the solar orb—a sister star."

The theory of Darwin is at once a theory of the earth, of the moon, and of the planets. In refutation of it, it is sufficient to remark, that astronomers have demonstrated with arithmetical certainty, that no such masses could have been ejected so far as to resist the attractive influence of the sun.

Many other absurd romances I will pass by in silence. Most of them are more or less founded on some of those already presented. It was remarked by a late writer on another subject, that there is nothing so foolish as not to have been said by somebody. We are never more forcibly impressed with the truth of this observation, than whilst examining the many ridiculous notions which have been entertained by men of the

greatest talents, on the subject of the formation of the earth. So great a genius as La Place supposed the lofty chain of mountains stretching through the American continent, to have originated from the falling in of a ring, like that of the planet Saturn, which formerly ornamented our globe. Others have considered the earth, as well as every other part of the planetary and stellary system, to have once existed in the form of gas, which was afterwards condensed in particular patches, forming planets and stars. All rocks and mountains were, by one philosopher, ascribed to meteors which had fallen from the sky. The same profound logician was convinced of the atmospheric origin of fossil shells, because, forsooth, they differ in kind from those which now inhabit the waters. A noted Frenchman believed that all rocks were manufactured by shell fish; and that all animals, except those of his own species, which did not then exist, were inhabitants of the sea, until these little architects had built their edifices above the surface of the water. The fabled mermaid is called upon to bear testimony to the truth of this theory. The celebrated Lamarck, a disciple of the same school, informs us that vegetables first converted water into clay; but he is not so careful to divulge the origin and habits of the first vegetables. Kepler, the great astronomer, considered the earth as one huge animal, with the waters for its blood and the rocks for its bones; and moreover, that the metallic ores are the product of disease and rottenness in the bones of this living mass, as the offensive odor of these ores plainly indicates. Lastly, Jamieson the mineralogist, regards the same earth as one enormous crystal, the faces of which are the strata on its surface!

There are but two geological theories which excite much attention at the present day—those of Werner and Hutton. As I shall have occasion frequently to refer to them in my subsequent essays, a brief sketch of their leading traits will not be improper in this place.

Professor Werner resided in the town of Freyburg, in Germany, and flourished about the middle of the last century. He began his career by a careful and laborious examination of the strata around his native place; and on the knowledge thus ac-

quired, he erected the system which bears his name. His antipathy, however, to the mechanical part of writing, which in some instances was carried to a laughable excess, prevented him from publishing except on one or two occasions. It is said that nothing could finally induce him to write a line; and to avoid reproaching himself with want of politeness, he at last would not open the letters addressed to him; so that when the French academy placed him among its foreign associates, an honor coveted by the most illustrious philosophers of Europe, he became acquainted with his honors through an almanac. An express which his sister had sent to him from Dresden, waited two months at an inn, at his expense, in order to procure his simple signature to some very pressing family concerns. He had committed his system to the press, but not willing to endure the fatigue of correcting the first proof sheet, this task was left to his students. Method was his hobby. He was exceedingly fond of dividing and classifying; and latterly bought books, not to study, but to arrange them in a certain order in his library. He is said to have debated alike on the order of his dinner table, and on the arrangement of his cabinet, and even traced the military art by the laws of geology. A man, said he, who wishes to become a great general, should begin his education by studying oryctognosy and geognosy, at Freyburg. His great error was in supposing that Saxony and Bohemia were the world in miniature; and hence he believed he had there seen all that the world afforded. Nevertheless, the untiring zeal of Werner, and his laborious examination of *things*, give him undisputed claims to the title of the father of practical geology.

According to the system of Werner, the surface of the earth was, at a very remote period of time, in a soft or fluid state, not by heat, but by water; and its central portion was occupied by vast empty caverns. The primitive rocks were first deposited from the aqueous solution by crystallization, and the water then partially retired into the caverns provided for its reception. Violent commotions were now of frequent occurrence, by which the first formed rocks were worn down, and their ruins left to subside and compose the mechanical secondary

strata. Rents and crevices were made by the subsidence of these semi-fluid materials, and these being filled with metallic matter poured in from above, constitute mineral veins. The mountains, in the opinion of Werner, owe their existence to the peculiar manner in which the rocks that compose them were crystallized. Basaltic and trap rocks were deposited at different periods, when the earth became again covered with water; such rocks are therefore of aqueous origin. As Werner called in the aid of water on all occasions, his theory has received the name of the Neptunian theory.

Hutton, the founder of the rival system, was a resident of Edinburg, and lived near the close of the last century. His theory explained nearly every thing on the supposition of a central fire, and has therefore been called the Plutonian theory, and its advocates styled Plutonists or Vulcanists. Hutton regards the stratified rocks as the result of a gradual wearing down of elevated portions of the original nucleus, which are thus transported into the bed of the ocean, and there deposited to be consolidated by the fire which operates continually from beneath. According to this view, the mountains were formed by the expansive force of the same heat, uplifting the strata in particular places; and veins owe their formation to the ejection from beneath of liquid metallic matter, into the cracks and fissures previously produced by the central fire.

Such is a transient view of the two rival theories, which are diligently asserting their claims upon our credence, at the present day. Of these, however, the Plutonian or igneous theory, with some modifications, is generally received by modern geologists. The scientific world has been recently favored with another method of explaining the same phenomena, which I must not pass in silence. I allude to the chemical theory of Sir H. Davy. This celebrated philosopher supposed the earth when originally propelled in its orbit, to have consisted of two portions—the one a central part or nucleus, the other a stratum of water by which the nucleus was enveloped. The central portion was composed of the bases of the metals in a simple state, potassium, sodium, silicium &c., which, it is known, have so strong an affinity for oxygen as to abstract it with much

violence from water. The confusion which must have resulted from the contact of such heterogenous substances, on so extensive a scale, may readily be imagined. By degrees the exterior of the solid portion of the earth became oxydized; and the water being prevented in part by the oxydized crust from coming in contact with the metallic bases, the mass is quiescent except when a quantity of water finds its way to the uncombined metals, and gives rise to the volcanic phenomena of the present age. This ingenious theory is supported by the fact that volcanoes are nearly always located in the vicinity of large bodies of water.

Within a very few years, another system, professing to explain the formation of the earth, has been presented to our notice by Granville Penn, a learned English geologist. This author supposes that our planet issued from the hands of its supreme architect precisely as we now find it, with the exception of some slight changes that have since occurred on its superficies. He considers it as easy a task for the Creator to call into existence the shells and bones and other parts of animals, as to form the living animals themselves; and hence that all those substances we are wont to regard as the remains of organized and living beings, have never in reality been endowed with life, but were originally created, motionless and inanimate, and entombed from the first in those vast cemeteries whence they are daily dragged forth to supply food for the restless curiosity of the human mind. This theory claims for its title "Mosaic Geology," from the supposition that it accords more nearly than any other theory with the account of the creation by Moses.

Having presented to my readers the foregoing hasty outline of the history of geology, and the principal "theories of earth," I will proceed in my next essay to introduce to their view the first principles of the science.

TRANSACTIONS OF THE PHILOSOPHICAL SOCIETY.

VOL. V. PART I. NEW SERIES.

Not having had the whole of the above work before us at the time the notice on our last page was written, we here give the contents, reserving a more extensive view for the next number of the Advocate.

I. On the diurnal variation of the Horizontal Needle. By A. D. Bache. II. Observations on the Naïades. By Isaac Lea. III. On the Visceral Anatomy of the Python. By Drs. J. P. Hopkinson and J. Pancoast. IV. On the longitude of the Hall of the Society. By S. C. Walker. V. On crystals developed in Vermiculite by heat. By A. Del Rio. VI. Collections towards a Flora of Arkansas. By T. Nuttall.

HALLEY'S COMET.

Among the Miscellania will be found a short notice of this celebrated comet, taken from a Troy daily paper, and from that copied by many of our unsuspecting editors, by virtue, as we suppose, of the implied authority of coming from the Renselaer Institute. The place to which that paragraph refers the comet is occupied by the planet *Jupiter!* A correspondent, in noticing this, and similar errors, observes that "*Mars* was taken for Biela's comet, the return of which was predicted for 1832, but which, since its last appearance, had so diminished as to be invisible to the naked eye. Sir John Herschell saw it, but only with his best reflecting instrument. Halley's comet is predicted for 1835; to pass the perihelion on the 4th of November. The return to its perihelion in 1759 was predicted by Clairaut to within twenty-seven days of its observed arrival at that place in its orbit. The mass of saturn was not then as accurately known as now, and consequently its disturbing force could not be so accurately estimated. Uranus was not then discovered, and the effect of that planet's attraction is necessary to a correct estimation of the comet's place.

"There is now no probability of any *considerable* error in the

calculated place of the comet, and therefore no reason to expect that it will be visible before the next year. Such changes have occurred in the appearance of this comet, at its different returns, as to give reason to expect, at its next visit, a diminished brightness and length of train."

We cannot possibly suppose that the notice of this comet which is published in our Miscellania, was given by authority of the Renselaer Institute, as the reader would naturally presume. The error is too gross to be attributed to any scientific observer.

SOME OBSERVATIONS ON BLIGHT.

[From the Entomoligical Magazine.]

Blight is a term generally misunderstood; especially among those whom it more particularly concerns. The knowing horticulturist will tell you, "There is blight in the air to-day:" and in a few days or weeks, he will see the web of the *lackey* or the *yellow-tail*, or the *ermine*, on his white thorn hedge rows; or the caterpillars of the *death's-head hawk moth* on his potatoes; or those of butterflies on his cabbages; and then he will give you a toss of his wise head, and utter, with a gravity quite in keeping, "I knew there would be a *blight* this year, I saw it coming in the air." Perhaps, however, he may find a good many snails eating his wall-fruit; or may, perchance, tread on two or three great stag beetles while performing their evening perambulation along his gravelled walks; and then, he "knew it would be either a *blight* or a *sneg;* but it's more of a *sneg* this year." Further than this, the horticulturalist has not progressed: webs and soft insects are *blights;* snails and hard insects are *snegs.* Warm south east winds produce the first; cold north-east winds, the last; and yet the same man would laugh in your face if you were to say seriously, on a cold morning, "There will be a *rise* in the funds to-morrow, I can see it in the air." I maintain that there can hardly be a greater service

performed to horti- and agri-culturists, than by pointing out to them the nature and habits of their insect enemies; and their laughing at us in the first instance will perhaps be repaid by their thanking us at last.

Let us consider, separately, some of the insects which bear the name of blight. We will, in the first instance, examine the apple-tree. Cider is an important article of manufacture, as well as consumption, in many of our counties; and, consequently, whatever tends to increase or diminish the supply, ought to be deemed by the grower worth his notice. The apple-tree has many assailants; the principal are the weevil, (*Anthonomus pomorum*) the woolly louse or American blight, and the moth. I will describe the first of these, and its mode of proceeding.

By carefully examining the bark of an apple-tree in the winter, you will occasionally find a pretty little beetle in the cracks, which, directly on being touched, shams dead, and drops on the ground, where you will not, without great difficulty, discover it, on account of the great similarity of its color; you must, therefore, hunt till you find another. This time, as soon as you see him, place one hand below him, then touch him lightly with a little bit of stick, and he will drop into your open hand; his own scheme for self-preservation will beat him. Now roll him into a quill, or pill-box, and take him home. Place him on a sheet of writing paper; you will soon see his shape—the head is furnished with a trunk, from which, on each side, springs a feeder, bent at right angles forward, so that the trunk altogether looks to be three-pronged, like a trident. The thorax and wing cases are brown, beautifully mottled; and an oblique line on each, pointing towards the suture or meeting of the wing-cases, is much lighter colored, and gives the little beetle an appearance of having a letter V obscurely chalked on its back. Its size altogether is rather less than a hemp seed.

With the first sunshiny day in March, these weevils leave their winter quarters, crawl up the trunk and along the twigs, perch themselves so as to receive the full benefit of the sun's rays, and plume themselves with their legs and feet all over, trident and all, just in the same manner that a cat washes her face with her paw: then they stretch out one leg at a time,

cramped, no doubt, by the long confinement; they lift up their wing-cases, and unfold two large transparent wings, which, though twice as long as the wing-cases, were neatly folded up and hidden under them, and then, launching themselves into the air, they go roving about the orchards and gardens, their little hearts in an ecstacy of freedom, and love, and happiness. It is not long before each finds a suitable mate: no relations raise objections; and the nuptials are consummated. Now I will allow the gentleman weevil to go his way in quest of new loves and conquests, and in the mean time I will observe the conduct of the lady.

By the time the female is ready for the important task of depositing her eggs, the spring has considerably advanced, the apple-buds have burst, and the little bunches of blossom are readily to be distinguished. The weevil soon finds out these; and selecting a blossom every way to her mind, commences her operations. The beak, or trunk, before alluded to, is furnished at its extremity with short teeth, or mandibles: with these, she gnaws a very minute hole into the calyx of the future blossom, and continues gnawing until her trunk is plunged in up to her eyes; the trunk is then withdrawn, and the whole examined with careful scrutiny by the introduction of one of her feelers, or outer prongs of her trident. If it seem to require any alteration, the trunk goes to work again, and again the feelers; at last, being fully satisfied that the work is well accomplished, she turns about, and standing with the extremity of her abdomen over the hole, thrusts into it her long ovipositor, an instrument composed of a set of tubes retractible one within the other, and deposits a single egg (never more) in the very centre of the future flower. Another examination with her feelers now takes place; and when she is thoroughly satisfied that all is right, away she flies to perform the same operation again and again, never tiring while she has an egg to lay.

The bud continues to grow like the other buds; the little perforation becomes invisible. By and bye, the egg bursts, and out comes a little white maggot, with neither legs nor wings, which, directly it is hatched, begins to devour the young and tender

stamens; next to these, the style is attacked, and eaten down to the fruit, the upper part of which is quickly consumed: the maggot is then full fed; it casts its skin, becomes a chrysalis, and lays perfectly still. Up to this time the blossom has continued healthy, no trace of the enemy being to be discovered without; but when the neighbouring blossoms are expanding their petals to the genial breath of spring, those of the mutilated bud remain closed, and retain the arched balloon-like appearance of a bud about to burst. For a few days they preserve their lovely pink color; and then, by degrees, fade to dingy brown. In this state they remain, until the other apples are well knit; and then the damaged blossoms, by their decided contrast, appear very conspicuous. On opening these brown, or rather rust-colored blossoms, about the 10th to the 15th of June, the chrysalis will be found to have changed to a perfect beetle, similar to its parent above described, which, had it been left to itself, would, in a few days, have eaten its way through the weather-beaten case of dried petals, and left its prison-house, flying about to take its pleasure, until the chilly winds of autumn should drive it to its winter habitation under the bark; and in the next spring, the whole round of operations, through which we have watched its parent and itself, would be performed with the same unvarying unerring instinct.

The cloudy misty east wind, in which our farmers and gardeners see the *blight*, is the very weather of all least favorable to the propagation and increase of these weevils. The fine clear sunny days of March and April are the most favorable to them. The tomtits, sparrows, bullfinches, and other birds, which, at this time of year, more particularly frequent orchards and gardens, and which, also, at this time of year, are persecuted with relentless hostility by the farmer and gardener, live, during these months, solely on these weevils, and similar little insects; and, consequently, are the only check on their increase which we possess; so that, in the first investigation of blight, we see how a little prejudice, superstition, and ignorance, tend to increase the injury they dread.

RUSTICUS.

JOURNAL OF THE WEATHER FOR MAY, 1834.

Moon.	Days mo.	Ther. Sunrise	Ther. M d-day	Ther. 11 P. M.	Barom ter. Sun-rise	Barom ter. Mid-day	Barom ter. 11 P.M	Winds. Morn-ing.	Force	Winds. After-noon	Force	Winds. Even-ing.	Force	Clouds. Course of clouds		Rain	Observations.
	1	46	67	47	29.54	29.50	29.60	SE	2	SSW	2	S	1	SW			Partly clear.
	2	44	67	48	.60	.59	.80	ENE	2	SE	2	SW	1	W	N		Partly clear.
	3	46	71	49	.89	.96	.96	E	1	S	0	SW	0	NW			Clear.
	4	47	72	53	30.00	.96	.94	SE	1	SSW	1	SE	1	WSW			Partly clear.
	5	54	48	50	29.85	.72	.58	E	3	NE	3	NE	2	S	E	2.85	Cloudy—rain & th. &light.
	6	4.	72	56	.63	.66	.67	N	2	SW	2	S	0	W	N		Clear—cloudy.
	7	56	73	49	.64	.57	.63	SE	1	W	2	NW	0	SW		.15	Rain—clear—lightning.
	8	50	63	49	.02	.63	.63	E	1	S	2	NW	1	SW	S	.85	Rain—clear—lightning.
	9	45	66	48	.80	.78	.73	W	2	SW	2	NW	3	SW		.40	Cloudy-rain-th. & light'g.
	10	45	67	46	.79	.70	.80	NW	4	NW	4	NW	1	NNW			Clear, cloudy, rain.
	11	43	76	65	.80	.73	.49	SE	3	SW	3	NW	3	WSW	WSW		Clear—partial frost.
	12	55	64	42	.50	.55	.55	NW	5	NW	4	NW	4	NW			Partly clear—th. gst. in S.
	13	37	49	35	.79	.80	.80	NW	4	NW	4	NW	2	W	NW		Mostly clear.
	14	31	60	34	.90	.75	.80	NW	2	W	2	NW	3	WSW			Partly clear.
	15	28	52	37	30.00	30.00	30.00	NW	3	NNW	3	NE	3	NNW			Clear—ice-th. & l. in night
☽	16	30	61	44	.15	.14	.15	NNW	2	NW	2	NW	1	WSW	WSW		Clear—ice.
	17	40	70	56	.24	.24	.24	WSW	2	SW	2	N	1	N			Clear.
	18	52	76	55	.20	.24	.24	SE	1	SE	1	SW	0	W	NW		Clear—hazy.
	19	51	83	62	.09	.00	.24	SSW	1	SSW	1	SW	0	W			Thin clouds—hazy.
	20	60	83	64	29.98	29.98	.97	E	1	S	0	0	0	W			Thin clouds—hazy.
	21	61	84	65	.93	.93	.90	SE	1	SSW	1	SW	0	N			Clear—dense haze
	22	61	84	59	.95	.96	.96	E	1	ENE	1	ENE	2	N			Clear—hazy and smoky.
	23	57	83	66	.95	.90	.90	SW	1	SSW	0	SW	0	?			Foggy—clear—hazy.
	24	63	85	68	.85	.80	.78	SW	2	SW	0	SW	3	WSW	SW	.05	Clear—hazy—shower.
	25	66	83	67	.78	.77	.77	SSW	2	SSW	2	SW	2	?	W		Partly clear-th. gust in N.
	26	64	75	63	.75	.75	.73	E	2	NE	2	E	1	?	NE	.12	Cloudy—rain
	27	60	73	60	.70	.70	.70	NE	1	NE	1	NE	1	?	NE		Mostly clear.
	28	55	56	51	.70	.70	.68	E	3	E	3	E	2	?	E	.05	Rainy.
○	29	52	58	52	.64	.63	.64	NE	2	NE	2	NE	1	?	NE	1.35	Rainy.
	30	50	69	59	.66	.70	.80	SE	1	S	1	E	1	SW	E		Mostly cloudy.
	31	55	76	59	.80	.80	.80	SE	1	S	1	E	1	SW	SE	.10	Cloudy—rain.

☞ The foregoing observations on the thermometer, barometer, and winds, are taken three times a day, at sunrise, mid-day and 11 P. M. In the column representing the force of the wind, 0 denotes calm or nearly so, 1 a light breeze, 2 a breeze, 3 a wind, 4 a high wind, and 5 a very high wind. The two additional columns denote the direction in which the clouds were observed to move; the former column referring to the upper stratum of clouds, and the latter to the lower, when two different strata were visible.

SUMMARY.

Average at sunrise, thermom.	50°06	—barom.	29.83	inch.
Do. mid-day,	do.	69°87	do.	29.817	do.
Do. 11 P. M.	do.	53°45	do.	29.813	do.
Monthly average,	do.	59°97	do.	29.823	do.
Maximum (24th)	do.	85°	do.(17th)	30.24	do.
Minimum (15th)	do.	28°	do.(11th)	29.49	do.
Range,	do.	57°	do.	.75	do.

Warmest day (25th)	do.	74.5°
Coldest day (15th)	do.	40°

Proportion of clear weather, ...	18 days.
Do. cloudy do.	13 "
Whole days clear, ...	10 "
Days on which rain fell, ...	9 "
Quantity of rain, ...	5.92 inches.
Northerly winds prevailed, (proportion,)	7 days
Easterly do. do. do. . .	11 "
Southerly, do. do. (S. to W.)	13 "

Observations.—No auroras. Clouds electrified on eight days, but without a complete thundergust. Two easterly storms with rain, one of which lasted several days. Rains frequent and abundant in the early part, and also in the latter part of the month. Nearly three inches fell on the 5th. In the middle of the month no rain occurred for two weeks. The winds were generally light, but not very variable. They prevailed from east and south during the first week, from north-west in the second, from south and west in the third, and from east during the last week. The temperature of the first twelve days was moderate; the clouds were frequently electrified and the barometer low. A north-west wind sprang up on the 12th, which reduced the temperature rapidly, and brought frost and ice on the mornings of the 14th, 15th and 16th. The fruit was almost entirely destroyed by this severe weather. The little which escaped, owed its preservation to the extreme dryness of the atmosphere. The tulip tree, chestnut, and other forest trees, which had just put forth their leaves, presented, a few days afterwards, the appearance of having been scorched with flame. Potatoes, corn, and other vegetables were injured. In three days from this time, the weather became oppressively warm, and remained so for a week.

On the evening of the 5th, after a very heavy rain during the day, the clouds in the south and south-east exhibited an incessant blaze of lightning for three hours. The sight was splendid. On the same day, in the afternoon, a dreadful tornado occurred near Petersburg, Va.

JOURNAL OF THE WEATHER FOR JUNE, 1834.

Moon.	Days m'th.	Ther. Sunrise	Ther. Mid-day	Ther. 11 P. M.	Barometer. Sun-rise	Barometer. Mid-day	Barometer. 11 P.M	Winds. Morning	Winds. Force	Winds. After-noon	Winds. Force	Winds. Even-ing	Winds. Force	Clouds. Course of clouds	Clouds.	Rain	Observations.
	1	58	66	64	29.78	29.67	29.60	E.	2	E.	1	S	0	?	E	2.25	Rain—cloudy
	2	63	75	52	.54	.50	.60	SW	4	NW	4	N	0	W	NW		Cloudy—clear—lightning
	3	50	70	53	.60	.63	.63	NW	3	WNW	3	NW	0	WNW			Clear
	4	53	73	53	.63	.50	.37	SE	3	SSE	2	N	3	SW	S	1.50	Partly clear—th. gust
	5	54	53	60	.37	.37	.37	W	4	N	3	NNW	3	?	NW	.25	Cloudy—rain
	6	56	78	58	.62	.64	.68	N	3	SW	2	SW	1	NW	NNE		Clear
	7	57	83	66	.70	.70	.70	NNW	1	W	1	W	1	NW			Clear
●	8	62	85	69	.70	.78	.78	SE	1	S	1	W	0	W			Clear
	9	65	88	75	.75	.75	.75	WSW	1	SW	1	W	0	W		.80	Clear—cloudy—th. gust
	10	69	86	77	.78	.79	.68	SE	1	SSW	1	W	3	WNW	WSW		Clear—lightning
	11	70	78	63	.68	.69	.79	NW	3	NW	3	NW	3	W	NW		Clear
	12	55	75	56	.85	.89	.89	NW	1	SW	1	W	1	WNW		1.00	Partly clear—th. gust.
	13	55	77	60	.60	.60	.71	SW	3	NW	3	NW	1	WSW			Clear
	14	55	75	60	.80	.80	.80	NNW	2	NW	2	NW	1	NW	NW		Cloudy
◑	15	59	73	63	.89	.89	.89	S	2	SSE	1	SE	1	W	S	.50	Rain—partly clear
	16	64	76	63	.83	.80	.79	E	1	E	2	ENE	1	WNW	E	.10	Rainy-th. and lightning
	17	62	66	63	.80	.79	.60	SE	1	SE	1	SE	1	ESE			Partly clear
	18	64	76	64	.59	.58	.53	SE	3	WNW	3	WNW	2	W		.15	Partly clear—two th. gusts
	19	62	78	63	.58	.53	.60	WNW	4	WNW	3	WNW	1	WNW	NW	.15	Mostly clear—rain
	20	62	79	63	.64	.64	.64	NW	2	NW	4	NW	1	NW		1.05	Partly clear—th. gust
	21	60	81	63	.64	.65	.65	SW	2	S	1	N	0	W		.25	Clear—cloudy—th. gust
	22	61	82	69	.70	.70	.70	NW	1	W	1	W	3	W	W		Clear—cloudy—lightning
	23	68	84	71	.70	.79	.79	NW	1	SSW	2	S	3	W			Cloudy—clear
	24	70	86	74	.80	30.00	30.00	SW	2	SW	2	W	1	WSW			Partly clear
	25	64	79	66	30.00	.00	.00	NE	1	WSW	1	SSW	0	WSW			Clear
○	26	67	87	71	.00	29.70	29.85	SW	2	SW	2	W	1	WSW		.12	Cloudy—rain
	27	62	78	64	29.85	.90	.90	N	2	NW	1	N	1	WNW	SSE	1.80	Partly clear—th. gust
	28	63	69	65	.90	.90	.80	SE	2	SE	2	ENE	1	SW	N		Clear
	29	63	80	67	.70	.70	.70	NE	1	NW	3	N	3	WSW	SW		
◐	30	63	78	63	.78	.80	.80	NW	2	NW	2	NW	0	NW	NW		

SUMMARY.

Average at sunrise, thermom.	61°23	—barom.	29.73	inch.
Do. mid-day,	do. 77°13	do.	29.724	do.
Do. 11 P. M.	do. 64°00	do.	29.724	do.
Monthly average,	do. 69°18	do.	29.727	do.
Maximum (19th)	do. 88°	do.(24th)	30.00	do.
Minimum (3d)	do. 50°	do. (4th)	29.37	do.
Range	do. 38°	do.	63	do.
Warmest day (24th)	do. 78°			
Coldest day (3d)	60°			

Proportion of clear weather, ...	19 days
Do. cloudy do.	11 "
Whole days clear do.	11 "
Days on which rain fell	13 "
Quantity of rain	9.92 inches.
Northerly winds prevailed (proportion) .	12 days
Easterly do. do. do.	7 "
Southerly (S. to W.) do.	11 "

Observations.—No auroras. Clouds electrified on twelve days. Eight complete thunder gusts. Three easterly storms, all attended with rain. Rains frequent and copious; much exceeding the average quantity for one month. Winds variable and often very high, in gusts. Temperature seasonably warm, and not very changeable.

PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

September 9th, 1834.

Dr. J. M. Keagy presented the following specimens of organic remains.

Phytolithus verrucosus depressus of Parkinson, found in connexion with the third or lower layer of stone coal in Clearfield county, Pa. and a variety with the depressions more numerous, from the same place.

Phytolithus cancellatus of Parkinson, being an impression on one side of the sand stone from the same locality.

Two specimens of Calamites.

A sulcated impression consisting of several straight and parallel grooves made by some ancient vegetable, from the same place.

Specimens of sand stone containing fragments of antediluvian charcoal and stone coal. These sand stone overlie and underlie the lower bed of stone west of the Allegany in Clearfield county.

A small fragment of the *Fucoides Brongniartii*, broken from

a large surface of the same kind, on a rock below Lewistown, on the Juniata river.

A specimen of very pure and strongly cemented sandstone, containing cavities formed by the decay of shells. This was found on the Juniata between Huntingdon and Petersburg.

A curious siliceo-calcareous concretion of which many specimens are to be found in Cumberland county below Carlisle. The concretions consist of concentric layers, assuming the cup shape of the acorn, and are attached to masses of stone of small size. They would at first sight seem to be organic remains, but a closer examination decides them to be formations by accretion.

Some samples of bituminous coal from the middle or most productive stratum of coal in Clearfield county.

Some gravelly concretions from a stratum of gravel on the bank of Clearfield Creek, which has diffused through its whole structure and cementation a sooty substance, which soils the hands, as though this layer had been the channel for the passage of smoke from some subterraneous combustion.

The curators reported that "a part of the herbarium of the late Mr. De Schweinitz had been received, and was now in the Academy. It consisted of sixty-three folio volumes, containing about 170 sheets each." This donation is one of great value. Nearly the whole life of its author was devoted to botanical research, with a zeal which now confers unbounded honor on his character. And sensible of the advantages accruing to science, from a concentration of objects of natural history, he nobly bequeathed no less than 23,000 species of plants, exclusive of a large collection of Algæ and Fungi, to the Academy of Sciences; thus rearing a monument of nature to his own memory. With the exception of the ferns, the Cryptogamous plants have not yet been received. As Mr. De S. bestowed particular attention to this portion of American botany, the Academy anticipates, with much anxiety, the period of its arrival, which will afford our scientific friends an opportunity of inspecting it.

EXPLOSIONS IN COAL MINES.—THE SAFETY LAMP.

Among the many invaluable discoveries which the present century has disclosed, we know none of paramount importance and utility to the celebrated safety lamp, used for working in mines.

Its importance can only be duly estimated by recurring to the immense destruction of lives which was continually taking place, previous to its general adoption, considering the progressive demand for the production of mines, and consequently the increasing number of our fellow beings who would necessarily be subjected to the deadly influence of the supposed untamable demons of subterranean caverns, and comparing the results with the present state of affairs, at the same places, where those catastrophes have occurred.

As this subject is sufficiently extensive to admit of two distinct essays, it will be accordingly divided; the first part comprising an illustration of the dangers incurred by miners, and the second, of the incidents which led to the admirable discovery of the safety lamp.

For our principal information on both of these divisions we are indebted to Paris' life of Sir Humphrey Davy; one of the most interesting biographies which we have ever had the pleasure of perusing.

When recently dug out and exposed to the atmosphere, bituminous coal parts with a portion of carburetted hydrogen gas; hence the fact of the coal being more inflammable when recently taken from the pit than after it has been thrown out for some time. This gas collects in crevices or fissures connected with the coal strata, and so great is its accumulation in such places that on some occasions when opened by the pitmen, upwards of 700 hogsheads of fire damp have been emitted in a minute. These are called *blowers*, and sometimes continue in a state of activity for many months together. Sir James Lowther found a current of this description in one of his mines which continued for the space of two years and nine months.

"All the sources of carburetted hydrogen would appear to unite in the deep and valuable collieries situated between the great north road and sea. Their air courses are thirty or forty miles in length; and here the most tremendous explosions have

happened. Old workings, on being broken into, have been found filled with this gas, which, by mingling itself with the common air, has converted the whole atmosphere of the mine into a magazine of fire damp.

"On the approach of a candle, it is instantly ignited. The expanding fluid drives before it a roaring whirlwind of flaming air, which tears up every thing in its progress, scorching some of the miners to a cinder, and burying others under enormous ruins shaken from the roof; when, thundering to the shafts, it converts the mine, as it were, into an enormous piece of artillery, and wastes its fury in a discharge of thick clouds of coal dust, stones and timber, together with the limbs and mangled bodies of men and horses.

"But this is not the most destructive effect of these subterranean combustions. All the stoppings and trappings of the mine being blown down by the violence of the concussion and the atmospheric current entirely excluded from the workings, such of the miners as may have survived the discharge are doomed to the more painful and lingering death of suffocation from the *after damp* or *stythe*, as it is termed, which immediately results from the combustion and occupies the vacuum necessarily produced by it."

To the just comprehension of the subject it is necessary that one authenticated account of an explosion should be given. Its history is the history of nearly all. The following are parts of one, drawn up with much accuracy, by the Rev. John Hodgson.

"The accident occurred at Felling Colliery, near Sunderland, on the 25th of May, in the year 1812. This mine was considered by the workmen as a model of perfection, both with regard to the purity of its air, and the arrangements of its machinery. The concern was in the highest degree prosperous; and no accident, except a trifling explosion which slightly scorched two or three pitmen, had ever occurred.

"Two *shifts*, or sets of men, were constantly employed, the first of which entered the mine at four, and were relieved at their working posts by the next set at eleven o'clock in the morning; but such was the confidence of the pitmen in the safety of this mine, that the second shift of men were often at

their posts before the first set had left them; and such happened to be the case on the following unhappy occasion.

"About half past eleven, on the morning of the 25th of May, the neighboring villages were alarmed by a tremendous explosion. The subterraneous fire broke forth with two heavy discharges from the shaft called the "*John Pit*," which was one hundred and two fathoms deep, and were almost immediately followed by one from that termed the "*William Pit.*" A slight trembling, as if from an earthquake, was felt for about half a mile around the workings; and the noise of the explosion, though dull, was heard to distance of three or four miles, and greatly resembled an unsteady fire of infantry.

"Immense quantities of dust and small coal accompanied these blasts, and rose high into the air, in the form of an inverted cone. The heaviest part of the ejected matter, such as masses of timber, and fragments of coal, fell near the pit, but the dust, borne away by a strong west wind, fell in a continued shower to the distance of a mile and a half; and in the village of Heworth it caused a gloom, like that of early twilight, and so covered the roads that the footsteps of passengers were strongly imprinted on them.

"As soon as the explosion had been heard, the wives and children of the pitmen rushed to the working pit. Wildness and terror were pictured in every countenance. The crowd thickened from every side, and in a very short period several hundred persons had collected together; and the air resounded with exclamations of despair for the fate of husbands, parents and children.

"The machinery having been rendered useless by the eruption, the rope of the *gin* was sent down the shaft with all possible expedition. In the absence of horses, a number of men, who seemed to acquire strength as the necessity for it increased, applied their shoulders to the *starts* or shafts of the gin, and worked it with astonishing expedition.

"By twelve o'clock, thirty-two persons, all that survived this dreadful catastrophe, had been brought to day light, but of these, three boys lived only a few hours. The dead bodies of two boys miserably scorched and shattered, were also brought up at the same time. Twenty-nine persons, then, were all who

were left to relate what they had observed of the appearances and effect of the explosion. One hundred and twenty-one were in the mine when it happened, eighty-seven of whom remained in the workings. Eight persons had fortunately come up a short time before the accident.

"Those who had their friends restored, hastened with them from the scene of destruction, and for a while appeared to suffer as much from an excess of joy, as they had a short time before from the depth of despair; while those who were yet in the agony of suspense, filled the air with shrieks and howlings, and ran about wringing their hands and throwing their bodies into the most frantic and extravagant gestures.

"As not one of the pitmen had escaped from the mine by the only avenue open to them, the apprehension for their safety momentarily increased, and at a quarter after twelve o'clock, nine persons descended the John pit, with the faint hope that some might still survive.

"As the fire-damp would have been instantly ignited by candles, they lighted their way by *steel-mills*;* and knowing that a great number of the miners must have been at the crane when the explosion happened, they at once attempted to reach that spot; their progress, however was, very soon intercepted by the prevalence of *choak damp*, and the sparks from their steel mill fell into it like dark drops of blood: deprived therefore of light, and nearly suffocated by the noxious atmosphere, they retraced their steps towards the shaft, but they were shortly stopped by a thick smoke which stood like a wall before them. Here their steel mills became entirely useless, and the chance of their ever finding any of their companions alive entirely hopeless; to which should also be added, the horror arising from the conviction of the mine being on fire, and the probability of a second explosion occurring at the next moment, and of their being buried in the ruins it would occasion.

* Steel mills are small machines which give light by turning a cylinder of steel against a piece of flint. Sir James Lowther had observed, early in the last century, that the fire damp, in its usual form, was not inflammable by sparks from flint and steel; and it appears that a person in his employment invented the machine in question.

"At two o'clock, five of the intrepid persons who had thus nobly voluntcered their assistance, ascended; two were still left in the shaft, and the other two remained below, when a second explosion, much less severe, however, than the first, excited amongst the relatives of those entombed in the mine still more frightful expressions of grief and despair. The persons in the shaft experienced but little inconvenience from this fresh eruption, while those below, on hearing the distant growlings, immediately threw themselves flat on their faces, and in this posture, by keeping a firm hold on a strong wooden prop, they felt no other annoyance from the blast than that of having their bodies tossed in various directions, in the manner that a buoy is heaved by the waves of the sea. As soon as the atmospheric current returned down the shaft, they were safely drawn to the light.

"As each came up, he was surrounded by a group of anxious inquirers; but not a ray of hope could be elicited; and the second explosion so strongly corroborated their account of the impure state of the mine, that their assertions for the present seemed to obtain credit. This impression, however, was but of short duration,—hope still lingered; they recollected that persons had survived similar accidents, and that upon opening the mine, they had been found alive after considerable intervals. Three miners, for instance, had been shut up for forty days in a pit near Byker, and during the whole of that period had subsisted on candles and horse-beans. Persons too were not wanting to agitate the minds of the relatives with disbelief in the report of the pitmen who had lately descended to explore the mine. It was suggested to them, that want of courage, or bribery, might have induced them to magnify the danger, and to represent the impossibility of reaching the bodies of the unfortunate sufferers. By this species of wicked industry. the grief of the neighborhood began to change its gloomy, for an irritable aspect. The proposition to exclude the atmospheric air from the mine, in order to extinguish the fire, was received with the cries of *murder!*—and with the determination to oppose such a proceeding by violence.

"Many of the widows lingered about the mouth of the pit

during the whole night with the hope of hearing the cries of a husband or a son.

"On Tuesday the 26th, that natural propensity in the human mind to derive gratification from spectacles of horror, was exemplified in a very striking manner. An immense crowd of colliers from various parts, but more especially from the banks of the river Wear, assembled round the pit, and were clamerous in their reproaches of the persons concerned in the management of the mine, accusing them of want of perseverance in their attempts to rescue the unhappy sufferers. Every one had some successful adventure to relate; all were liberal in their professions of readiness to give assistance; but not one was found hardy enough to enter the jaws of the burning cavern."

As soon, however, as the leaders of this outcry became acquainted with the circumstances of the case, they allowed the impossibility of obtaining the bodies by any means previous to extinguishing the fire. At the same time the proprietors gave the strongest assurances to the multitude, that if any project could be devised for the recovery of their friends, no cost or labor should be spared in executing it; that if any laborer could be found willing to enter the mine, every facility should be afforded him. But, as they were assured by the most eminent miners that the workings were inaccessible, they would hold out no reward for the attempt.

At the solicitation of the populace, two persons again descended the shaft, and nearly lost their lives in the attempt. Their report convinced the people of the impossibility of their friends surviving in so deadly an atmosphere; and the operation of closing the mine was accordingly performed.

More than a month elapsed before it was in a state to admit of examination. On the morning of Wednesday the 8th of July, the melancholy task was commenced. A great concourse of people had assembled; some out of curiosity, to witness the commencement of an undertaking full of sadness and danger,—some to excite the revenge, or to aggravate the sorrows of the relatives by calumnies and reproaches,—for the sole purpose

of mischief; but the greater part, with broken hearts and streaming eyes approached, in expectation of seeing the mangled corpse of a father, brother, husband, or son.

The bodies were found under various circumstances. Twenty-one were found together in gastly confusion—some like mummies, scorched as though they had been baked; one wanted a head, another an arm; some were torn almost to pieces, others had sunk down as though overpowered by sleep; and on all, the effects of the fire were plainly to be seen. So mutilated and changed had they become that the wife no longer knew her husband, or the mother her son. Their clothes, shoes and tobacco boxes, were the only things remaining by which the living could make a friendly recognition of the dead.

The total loss from this terrible accident was ninety-two pitmen; while forty widows, sixty girls, and twenty boys, comprising, in all, one hundred and twenty-six persons, were thrown upon the benevolence of the public.

It was the frequent recurrence of such events as these which roused the spirits of some philanthropists to devise means by which the life of the miner should be insured while toiling with such precarious prospects. An association was established, and various plans proposed to prevent accidents from fire damp. But none of these possessed sufficient virtue to entitle them to general adoption. Considerable advantage was derived, however, from the care taken by the proprietors of an extensive colliery which was subject to explosions, to inform the workmen of the nature of fire damp, and to instruct their children in the elementary principles of science. Such was the effect of this generous system, that for twelve years previous to that of 1814, no accident of any consequence had occurred in those mines.

But it is to the efforts of Sir Humphrey Davy, that the world is indebted for an invention,—the offspring of deliberate, philosophical research,—which, as has been said, changes the once unsparing enemy of the miner into his faithful friend, and causes that to minister to his convenience which was once looked upon with feelings of unbounded terror. In our next number we will give a detailed account of the Safety Lamp.

COUNTRY MUSEUMS.

THE subjoined article we abstract from Niles' Weekly Register. The hints contained in it are of general importance. Every lover of science would be gratified to see musuems of the character referred to, established in all sections of the country. They would give cheering evidence of a progressive improvement in the intellectual taste of our people, and open the eyes of many to the intimate connexion which exists between science and the every day vocations of life; between a knowledge of nature, and the means of promoting human happiness. It is with gratification that we are able to mention, that the interest of many of our neighbors has been excited on this subject; and they are using praiseworthy exertions for the purpose of accomplishing their object. Within a few years, several institutions have been established, all of which are now in a very flourishing condition. The Chester County Cabinet, and Delaware Academy of Natural Sciences, have both large and valuable collections. And our fellow citizens of Delaware county and Byberry have more recently commenced exertions in the same cause. We understand their museums are becoming quite large; and we hope that their exertions may be extended, so as to have the contemplated happy effect on themselves, and to stir up the zeal of others in similar interesting projects.

"The treasures of wealth and of science have alike been enriched, within a few years past, by measures to explore and unfold the natural resources of our country. The mineral kingdom, especially, has been found to contain vast riches, before unknown, which, being developed, have been applied for the equal benefit of the farmer, the mechanic, the manufacturer and the lover of science.

"A geological excursion of Professor Silliman, with several of his pupils, a few years since, in the vicinity of New Haven, led to the discovery that the common stone walls which had been standing a hundred and fifty years, as the enclosures of farms, were principally composed of the verd antique marble, commonly considered the most beautiful marble known upon

our globe. At this place commences a range of this useful material for architecture and for various works of ornament and taste, which continues for many miles, and in inexhaustless abundance.

"From Hallowell, Maine, granite of the most valuable and beautiful kind, is carried to nearly all our seaports, from New Orleans to Eastport—where it is used in great quantities for the building of houses, wharves and various other purposes. But a few years ago, stone of an inferior quality was brought from a distance for buildings within a few rods of these inexhaustible quarries, which now disperse their riches to other cities and other states.

"Copperas, which is used in vast quantities in this country, especially for the purpose of dyeing, was, until recently, procured entirely from foreign countries. The researches of geologists have discovered that copperas ore, the sulphuret of iron, exists in many parts of our country in sufficient quantities to furnish the world with this necessary material in the arts, at a far less price than it is supplied from abroad. In Strafford, Vt. copperas is made, in a great measure, by a spontaneous process, from the ore in that place, in sufficient quantities to supply all demands, and at such a price as to put an entire stop to importations of that article.

"Formerly chrome yellow sold at sixteen dollars a pound. The chromate of iron, found in great abundance in the vicinity of Baltimore, together with the increased skill of changing it into the chromate of lead, or chrome yellow, has reduced this beautiful and useful paint to fifty cents a pound. The ore and the skill of working it, have been brought out, in part at least, by the researches of mineralogists and other amateurs of science.

"Epsom salts, but a few years since, were furnished to this country entirely by importations from abroad. They are now made in Baltimore, from magnesite, a mineral found in great abundance in the vicinity of that city, of a better quality and at a cheaper rate, than they were, or can be from foreign countries.

"The mines of Mexico and South America, until recently,

furnished our mint and the arts with the principal part of their gold. The researches of Professor Olmsted, of Yale College, formerly of Chapel Hill, in North Carolina, into the mineral treasures of that state, and those of other geologists in different parts of the country, have discovered that gold mines are extensive and abundant in Georgia, the Carolinas, Virginia and some other states.

"These examples, though few among thousands which might be adduced, are sufficient to show the intimate connexion between science and art, and that the one must necessarily be the handmaid to the other; that the treasures of knowledge and of wealth are alike dependent upon the great storehouse of nature for their riches—and that the prosperity of individuals and of nations is in proportion to the industry, the skill, and the general intelligence, which is applied in unfolding and appropriating those gifts of nature which a wise and bountiful Creator has scattered around us in rich profusion and variety.

"Although much has already been done, much more remains to be done, towards bringing into full requisition, the elements of wealth and the materials and the stimulus of industry, existing in our mines and our forests. Doors are opened to them, but comparatively few of their apartments have yet been entered, much less explored. Though I would not presume, even, to give a hint at the various means and modes of enriching more largely the treasures of science and of wealth from the resources of nature, I will beg leave to mention one measure, by which aid may be rendered to this important object. This measure is the forming of museums, or cabinets of nature and of art, in all the country towns throughout our Union. In many, such collections are already formed. The facilities are great and the means abundant, for furnishing to each of the eleven hundred counties in our Union, a place of social, intellectual and useful resort, for all their citizens disposed to participate in the enjoyment.

A Farmer."

CARRAGEEN OR IRISH MOSS. By L. Feuchtwanger.

Chondrus *crispus*, Lyngbye, Hydropt. Dan. p. 26, t. 4. Greville, Algæ Brit. p. 129, t. 15.

Spaerococcus *crispus*, Agardh, Sp. Alg. 1. p. 256.

Fucus *crispus*, Lin. Syst. Nat. ii. p. 718. Turn. Hist. Fuc. p. 216—217.

This moss is common on rocks and stones, along the coast of Europe; it is also a native of the United States. A very variable species, but easily recognized, when the eye is accustomed to it. The genus Chondrus, belongs to the order Florideæ of the great natural family of the Algæ. All the species have a cartilaginous frond, which is flat, without nerves, dichotomous, dilated at the extremity, and of a livid reddish color; the fructification consists of scattered capsules, mostly immersed in the frond, rarely pedicellate; seeds minute, rounded.*

This moss abounding on the southern and western coasts of Ireland, has been used by house painters for sizing; it has likewise been highly esteemed by the inhabitants, as a dietetic remedy for various diseases; more especially for consumption, dysentery, ricketts, scrofula and affections of the kidneys and bladder. Dissolved by being boiled in water, a thick jelly is produced, more pure and agreeable, than that procured from any other vegetable, which is found to agree better with the stomach, than any procured from animal substances. Its chemical composition appears to me, as far as I have been able to trace it, of very considerable importance; the jelly formed by dissolving it in hot water is not only composed of starch but contains a large proportion of pectic acid, a considerable quantity of sulphur, and some chlorine and bromine and another acid combined with lime have been discovered; the latter proves to be the oxalic acid.

*** I am indebted to Dr. John Torrey, for the communication of the botanical description.**

Neither the fungic nor boletic nor lichenic acids could be detected, and the existence of iodine I have not been able as yet to detect. By extracting the pectic acid with caustic potassa, I found the moss taken up and altogether dissolved, and after treating the gelatinous mass with chloride of calcium, muriatic acid, and applying alcohol to separate the acid, at least 0.6 of this last was the result.

By reducing the moss to coal and dissolving it in water, sulphuretted hydrogen gas was evolved very abundantly; protoxide of iron, subcarbonate of potassa, diluted sulphuric acid and lime water gave copious precipitates.

The chemical characters of this moss are too interesting to be considered as completely determined by the few superficial experiments, undertaken to discover its properties, especially as they were made at a time when I have been continually interrupted by an attention to the duties of my profession, and I consider them as having been undertaken more for the satisfaction of my curiosity, than as tending to a complete and scientific investigation of such an invaluable medical substance as carrageen; but I hope to be able very shortly to develope with more accuracy the entire composition of this singular moss.

The carrageen seems to possess qualities similar to the Iceland moss, which according to Berzelius' last analysis, (a masterpiece in every respect,) consists in 100 parts of 3.6 syrup, 1.9 bitartrate of potassa, tartrate and some phosphate of lime, 3.0 bitter principle, 1.6 green wax, 3.7 gum, 7.0 colouring matter, like extract, 44.6 lichen starch, 36.2 starch-like matter; but carrageen is without bitter principle, contains nothing but soluble matter, and the quantity of nutritious jelly, produced by a small portion of it, gives it the most indisputable preference. It was first introduced by Dr. Reece, who considered it a most important article of food for invalids, and Doctors Sulby, O'Reilly and Sir Henry Halford, speak of the carrageen as the most nutritious article of diet for invalids they are acquainted with, as well as a light nutritious food for delicate and weakly children. In this respect, it is certainly su-

perior to arrow root, sago &c. being more highly nutritious, easy of digestion, and pleasing to the taste.

Prepared with warm milk and sweetened, it is most particularly recommended as a breakfast for consumptive patients.

Decoction of moss made by boiling half an ounce clear moss in a pint and a half of water or milk until reduced to a pint, is recommended as food for children affected with scrofulous or ricketty diseases, for such as are delicate and weakly, and for infants.

There are some printed directions for the manner of using the carrageen moss for medicinal and culinary purposes, accompanying some imported from England, from which I shall make here an extract.

Directions for using the Moss Medicinally.—Steep a quarter of an ounce of moss in cold water for a few minutes—then withdraw it, (shaking the water out of each sprig) and boil it in a quart of new or unskimmed milk, until it attains the consistence of warm jelly—strain, and sweeten it to the taste with white sugar or honey, or if convenient, with candied Eryngo root; should milk disagree with the stomach, the same portion of water may be used instead. The decoction made with milk is recommended for breakfast for consumptive patients; and with water will be found a most agreeable kind of nourishment, taken at intervals during the day, the flavour being varied with lemon juice or peel, Seville orange juice, cinnamon, or wine of any sort most congenial to the taste.

The decoction in water is also taken for the relief of cough, at any time in the course of the day, when it is troublesome, and it is, for this purpose, simply sweetened with honey.

In dysentery, the decoction either in milk or water, may be administered with equal advantage, and in addition to the sweetening matter, if a tea-spoonful of the tincture of Rhatany be mixed with each cupful of it, tone will thereby be given to the intestines, at the same time that nourishment will be conveyed to the system, and irritation prevented—a large tea-cupful of the decoction may be taken three or four times a day.

As a pleasant strengthening food, boiled with milk and strained with the addition of a little sugar, it is unrivalled for infants. Persons take it in this way for breakfast or supper, with the happiest effect, who are sustaining an attack of the cholera.

Culinary Directions.—To make Blanche-Mange:—take half an ounce of moss, and having cleansed it by the process above described, boil it in a pint and half new milk, until it is reduced to a proper thickness to retain its shape; to be sweetened and flavored with lemon, white wine, or any thing to suit the palate.

To make Orange, Lemon or Savory jellies:—use a similar process, substituting water for milk—add lemon, orange, herbs, &c. according to taste.

To make white soup:—dissolve in water, afterwards add the usual ingredients.

It only remains to state, that the Carrageen or Irish Moss, as a domestic article is peculiarly interesting; it is the best thickener of milk, broths, &c. makes excellent jellies, and for Blanch-Mange is equal to most expensive ingredients, whilst the cost is comparatively nothing; it may be used instead of isinglass, jellies, &c. *Am. Journ. Science and Arts.*

MISCELLANIA.

1. *Destruction of insects which infest trees.*—A writer in the *Journal des Connais Usuelles*, recommends spirits of turpentine as an excellent article to effect this important purpose. He placed a few handfuls of earth in a bowl containing spirits of turpentine, added water, and stirred the whole together, until it had a proper consistency to be rubbed or brushed over the ends of the branches. The insects perished with their germs on applying this mixture; the odor remaining several days about the tree, repelling fresh invaders. A mixture of earth is necessary, since water will not combine with the turpentine, and if the latter be used in too great profusion it might burn the leaves.

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2. *Substitute for linen.*—Silliman's Journal, for September, contains a paragraph stating that a new and beautiful material has been discovered in Salem, Mass., which bids fair to become an invaluable fabric, far surpassing in strength and beauty of texture that of linen; its culture requires much less labor and expense than that of flax, and the plant being perennial, does not require to be annually renewed. Its preparation for manufacturing is more simple than that of flax or silk, and moreover, it requires no bleaching. In addition to these remarkable qualities, small fancy articles manufactured from it seemed rather to be strengthened than otherwise by the action of water. This, in addition to the fact of its being actually mistaken for silk, gives it another advantage over that extensive production of animal machinery. But we are not done enumerating its virtues yet. Experiment has induced the belief that paper of every description can be manufactured from it, possessing a texture heretofore unrivalled in the whole world. All this, saying nothing of numerous other qualities, which will not be enumerated at present, lest the aspect of incredulity may be found to dwell on the countenance of our readers. Our account states that the discovery has been *patented*, and we do not think the proprietor would suffer any

great loss by placing a specimen in the hands of a botanist, and thus giving the curious a chance of knowing its description and name. There are many plants growing in our country, calculated to serve an important purpose in the arts, whose virtues are yet to be discovered.

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3. *Ærial Ship.*—M. Lennox, an officer of the French army, lately constructed the most enormous fabric in the shape of a balloon, which has ever been heard of. Its dimensions were 134 feet long, 34 feet high and 25 feet wide; of an elliptical shape for the purpose of facilitating its progress through the air. The car was attached to it in a different manner from ordinary, being close to the balloon. It was 60 feet long, crossed by seats of wicker work, and calculated to accommodate thirty persons. Over the balloon were rope ladders, so that the sailors could traverse its surface and repair any part which might be injured. Numerous other fixtures and provisions had this mighty machine attached to it; and by dint of wheels it was to be paddled through the air with unparalleled velocity, *malgre* counter winds and storms, and all the difficulties attendant on ærial navigation. The *Champ de Mars*, in Paris, was the place appointed for the ascension. But at the very moment, when every body and every thing was prepared for this final event, the balloon suddenly burst, and disappointed every body, even those who were to risk their lives in the *Flying Dutchman.* We must confess our dislike to these experiments, where human life is unnecessarily risked by wholesale. If the scheme of the æronautic philosopher were resolved into a system safe in practice, we would not object to a jaunt from Paris to London, or to any other place under the sun.

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4. *Effects of darkness in producing deformities.*—There is at present in Paris an artist of the Louvre, an eminent historical painter, of the name of Ducornet, who paints with his feet. He was born without arms, of poor parents, at Lille. There are also about the French metropolis a number of beggars, twelve or thirteen of them at least, all deformed in various ways, and all born at Lille, in certain dark caverns under

the fortifications. The effect of these places, from their want of light, producing malformed births, is so notorious, that the magistrates of Lille have issued strict orders to prohibit the poor from taking up their abode in them. It is added by the writer, that he had a conversation with Mr. Edwards on the subject, and that gentleman was greatly struck with the confirmation which the above circumstances afford to his views, stated in his work *Sur l'influence des agents physiques sur la vie.* Mr. Edwards' experiments of detaining tadpoles in darkness, and thus causing them to grow into gigantic and monstrous *tadpoles*, instead of being transformed into frogs, are well known.—*Lond. Med. Gaz., Sept.* 1833.

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5. *Practical advantages of knowledge.*—The superiority of scientific attainments over those of all other kinds, consists in their being subservient to some useful purpose, under all circumstances of life. They keep the mind in a state of useful activity; giving it the faculty of close and philosophical observation on every thing which comes before it. The following anecdote, taken from Scot's Mechanic Magazine, admirably illustrates this point:

"A young Parisian of the name of Leger, went on a commercial adventure to Egypt in the year 1822; but during some of the convulsions of that unsettled country, he lost the little property with which he was intrusted, and was forced to make a precipitate retreat from Suez to Alexandria. He remained some time at Alexandria, destitute and almost hopeless. But the talent of observation, and the social habits characteristic of his countrymen, came to his aid; in a lucky moment he formed the resolution of retrieving his fortune by introducing the luxury of *ice* into the parched land of the Ptolemies. This common product of wintry regions, is known to be as grateful to the languid natives of tropical climates, as ardent spirits are to the benumbed inhabitants of the polar circle. Having succeeded in effecting a return to his family, the enterprising Parisian was enabled, by the friendly assistance of Gay Lussac and Thenard, to adopt the best means that chemistry could devise for the preservation of ice, both during the voyage and after

its arrival in a sultry latitude, and at length set out from Paris with his inventions, and arrived safely at Alexandria, in April, 1823. The sovereign of Egypt, Mohammed Ali, was delighted at this novel addition to oriental luxuries, and besides valuable presents, gave the inventor the exclusive right for five years of importing ice into his dominions. This privilege is estimated to be worth one million of francs, or nearly 50,000*l.* In ancient times the world was enlightened by the learning of Egypt; the greatest philosophers travelled thither as to the fountain head of science; but the land of Sesostris and Alexander has now become the prey of the ferocious Moslem; and whatever she enjoys of art, knowledge or civilization, she is compelled to receive from the once barbarous regions of the West."

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6. *Discharge of the stain of indelible ink.*—Dr. J. Dickson, of South Carolina, in a letter to the editor of the American Journal of Science, states that corrosive sublimate will discharge the color produced by nitrate of silver on linen, cotton or the human skin. On the former, the stain partially reappears after washing, but on the skin it is permanently removed.

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7. *Sympathetic ink.*—The following affords a sympathetic ink, far superior to any as yet in use. Dissolve a small quantity of starch in a saucer with soft water, and use the liquid like common ink; when dry, no trace of the writing will appear on the paper, and the letters can be developed only by a weak solution of iodine in alcohol, when they will appear of a purple color, which will not be effaced until after long exposure to the atmosphere. So permanent are the traces left by the starch, that they cannot, when dry, be affected by Indian rubber, and in one case, a letter which had been carried in the pocket for a fortnight, had the secret characters displayed at once, by being very slightly moistened with the solution of iodine.—*Journ. Franklin Instit.*

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8. *Happy effects of science in prolonging life.*—The following from Herschel's Discourse on Natural Philosophy, is one

among the numerous facts which might be cited, to illustrate the benefit which man derives from an acquaintance with science, by prolonging life, and consequently by increasing the enjoyments of life:

"In needle manufactories, the workmen who point the needles are constantly exposed to excessively minute particles of steel which fly from the grindstones, and mix, though imperceptible to the eye, as the finest dust in the air, and are inhaled with their breath. The effect, though imperceptible on on a short exposure, yet being constantly repeated from day to day, produces a constitutional irritation, dependent on the tonic properties of the steel, which is sure to terminate in pulmonary consumption; insomuch, that persons employed in this kind of work used scarcely ever to attain the age of forty years. In vain was it attempted to purify the air, before its entry into the lungs, by gauzes or linen guards; the dust was too fine and penetrating to be obstructed by such coarse expedients, till some ingenious person bethought him of that wonderful power which every child who searches for his mother's needle with a magnet, sees in exercise. Masks of magnetized steel wire are now constructed and adapted to the faces of the workmen. By these the air is not merely *strained* but *searched* in its passage through them, and each obnoxious atom arrested and removed."

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9. *Heat developed by certain flowers.*—Few persons are ignorant that the flower of the Arum *cordifolium*, of Madagascar, observed by Hubert in the island of Bourbon, increases in temperature at the moment of flowering, from 19° to 25° R.; but Bory de St. Vincent has remarked, that the temperature of the climate during the day might have contributed to this thermometrical elevation. Afterwards, Lamarck and Senebrier observed this same augmentation of temperature in the flowers of the Arum *Italicum*. J. N. Linck also announced a similar phenomenon in another of the Aroideæ—the Caladium *pinnatifidum;* but this fact was denied by Dr. Gœppert, of Breslaw. To settle the question, Dr. E. H. Schultz, of Berlin, repeated the experiment on this plant. The 1st of May, 1833, at noon, the

temperature was 13° R.; at six o'clock, the flower began to give out an ammoniacal cadaverous smell; at seven o'clock, its temperature was 17° R.; at eight, it was 19° R.; at nine, it was 20°; at ten o'clock, it rose to 81° F. The heat never rose higher, and the next day the flower had returned to the temperature of the atmosphere. The other flowers of the same plant manifested the same series of phenomena, though they opened at different periods of the day and night.—*Journ. de Pharm. and Phil. Journ. of Pharm.*

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10. *A brilliant and useful varnish for cast iron.*—Suspend the article by a bent wire, and give it, with a brush, a thin coat of linseed oil, then hang it eight or ten inches above a wood fire, so that the smoke and flame may frequently play around it. After being thus exposed over a good fire during a full hour, bring it down very near the burning coals, without touching them; after it has thus remained about fifteen minutes, dip it into cold spirits of turpentine.

If this single operation does not give it sufficiency brilliancy, it may be heated again over the coals, and dipt a second time in the spirits.—*Journ. des Conn. Usuelles.*

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11. *New species of wheat.*—Mr. Gorrie, in the Highland Society Transactions, mentions a new species of wheat which has been lately found. It is very prolific, growing a foot higher than the common, unlike the Revel, and somewhat similar to the Egyptian wheat. It is awned, of a clearer color than the latter, and without its protuberances. Nothing is said of its virtues of forming the staff of life; but it is recommended on account of its not being liable to the attack of the fly. Not an ear of it was touched by these unwelcome visiters in a patch where it was growing with some common wheat, and when the latter was all injured.

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12. *Halle's comet—Oct. 2d.*—At twelve o'clock, last night, this comet's bearing from Renselaer Institute was S., 80½ E., that is, one degree less than one point south of east. At the same time its altitude was 35 degrees 49 minutes 30 seconds.

Its angular distance from the centre of the group, usually called the seven stars, was 14 degrees, in a north easterly direction. No train or tail was discernible to the naked eye, nor through the telescope. It appeared perfectly spherical, and a little darker in the body of the disk than near its margin.

We have good reason to believe, that not one in a thousand of the present inhabitants of the earth, will live to receive its next visit. And no one has ever seen it before, who has not completed his three score and ten.—*Troy Daily Whig.*

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13. *Mortality among professional men.*—M. Casper, professor at Berlin, has published a series of observations tending to show the comparative longevity of persons employed in different occupations. The result of the whole is, that of 100 clergymen, 42 reached the age of seventy; of 100 farmers, 40; of 100 military men, 32; of 100 lawyers, 29; and of 100 physicians only 25. In order to arrive more accurately at the result, he confined his observations to physicians in practice, exclusive of such as were in a considerable degree occupied by the sciences connected with that of medicine, such as naturalists, surgeons, &c.

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14. *Coal bed.*—A vein of coal has lately been discovered twenty-two miles above this place, on the western side of the Susquehanna river, opposite to Millersburg, not far from the bank. Workmen have been for some time digging, but found nothing but indications of coal until last week, when a vein of good coal, of several feet in thickness, was discovered. This coal is but eighty-four miles from tide water by the way of the Susquehanna.—*Harrisburg Intel. Sept.* 4.

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15. *Hygeian Pills.*—If ever the American people were imposed upon in any way, they have been by the sale of Morrison's pills—not but they are good physic; the enormous price is the mischief—for the poor are the most likely to purchase such medicines, and they, consequently, are *swindled.* It has been ascertained by men of truth and soberness, that the pills sold for three dollars, generally cost twelve cents, and that

they are composed of precisely the same materials that *common* doctors make pills of—No. 1 being made of aloes and cream of tartar, equal parts; No. 2, of cream of tartar, eight parts, gamboge and colocynth, each one part; thus what any intelligent physician would give for a trifle, is palmed off by these Hygeists for three dollars; and the three dollars is more often taken from the hard earnings of the poor than from the pockets of the rich.—*Concord Chamelion.*

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16. *Longevity.*—A poor colored woman died of cholera in New York on the 4th ult., at the advanced age of 109 years. She was probably the oldest person in the city at the time of her death. There is a colored man of the age of 104, still living in Washington street.

NOTICES OF WORKS IN THE PRESS.

"MARINE CONCHOLOGY. By *T. A. Conrad.*" The first part of this work is now published, containing seventeen colored plates, illustrating the following genera, which occur on the coast of the United States:—Pecten, Lima, Solecurtus, Solen, Nucula, Sanguinolaria, Cardita, Mya, Thracia, Artemis, Pandora, Lepton, Lyonsia, Iphigenia, Capsa, Astarte, Solemya, Mactra, Lutraria, Petricola. A few copies only are published, and may be had at the office of the Advocate of Science.

"TRANSACTIONS OF THE PHILOSOPHICAL SOCIETY." A new number of this valuable work has just been published, containing among other interesting papers, descriptions and colored figures of new shells, principally fresh water bivalves, of the family *Unionidæ.* The figures are well executed, and will afford the student much assistance in arranging the species of a family, which on account of the wide differences produced in each by a variety of climate and locality, are very difficult to determine. This essay is by Isaac Lea, Esq., whose anterior labors in this department are so advantageously known.